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FEDERAL COMMUNICATIONS COMMISSION
Consumer & Governmental Affairs Bureau
Consumer Inquiries and Complaints Division
445 12th Street, S.W., Room CY-B523
Washington, D.C. 20554

03-104

JAN 27 2005

In reply refer to:
IC 05-I0142809/kah

Mr. Hector Espinoza
7840 South Kenton Avenue
Chicago, IL 60652-1131

Dear Mr. Espinoza:

Thank you for your letter addressed to Chairman Michael Powell regarding the New York Times' article "Plugging into the Net, Through the Humble Wall Outlet." Your letter has been forwarded to the Consumer & Governmental Affairs Bureau.

The issues outlined in your letter are currently under consideration by the Commission. Your comments have been placed in Docket No. 03-104. Please do not hesitate to contact us with any additional information or questions you may have.

Sincerely,

for Martha E. Contee, Chief
Consumer Inquiries and Complaints Division
Consumer & Governmental Affairs Bureau

Kindly acknowledge receipt

03-104

Hector Espinoza

From: "Hector Espinoza" <hespinoza@sbcglobal.net>
To: <Michael.Powell@fcc.gov>
Cc: <managing-editor@nytimes.com>
Sent: Friday, October 29, 2004 9:04 AM
Subject: NIR-546 -- FCC-Safety Concerns on BPL Wall Outlets

Reference
Tom McNichol, "Plugging Into the Net, Through the Humble Wall Outlet". The New York Times/Technology, published October 28, 2004.

Mr. Michael K. Powell
Chairman, Federal Communications Commission
Washington, DC

Dear Sir:

Permit me to bring your attention to the note in reference that provides a very good "primer" on BPL. (Please disregard the colored highlighting which are my mnemonics.)

I am an electric power engineer that naturally follows with interest the march of progress on high-speed Internet. Fostering greater competition is good.

However, I note with concern that in the BPL "wall outlet" option (# 5 in Multimedia Graphic), a data connection is "piggybacked" on the LV line.

There is, Sir, a potential danger in this approach. Taking into account that the "Power Line Bridges" are going to be for years subject to very rough outdoor conditions, there are chances of a deadly galvanic (i.e., metallic) connection from the MV Lines (medium voltage lines, typically 12,000 V; I prefer to call them HIGH voltage lines) to the 120V outlets.

That is, Sir, a risk for electric shock fatalities. In recent "progressively" privatized utilities in Latin America, HV cables have shared "manholes" with communication wires and persons have been killed. The tragedy is, Sir, that the person trying to help also dies.

What steps have been taken against this danger? Have these "Power Line Bridges" been tested and certified by Underwriters Laboratories or similar organization?

To me, the "wireless Wi-Fi" option (# 6 in Multimedia Graphic) makes a lot of sense. I certainly would choose it.

I note in passing that similar connections (from HV to a metal control enclosure) are used in PLC (Power Line Carrier) equipment in electric substations. In those applications, equipment manufacturers and power utilities address the subject meticulously.

If you have any question, please advise. If a research in the subject is required, permit me, Sir, to offer my professional services.

Thanks,

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Plugging Into the Net, Through the Humble Wall Outlet

By TOM McNICHOL-Published: October 28, 2004

HIGH-speed Internet access usually comes to homes through one of two wires: a telephone line for D.S.L. subscribers, or a coaxial cable for cable modem users. But an emerging technology known as broadband over power lines, or B.P.L., may soon offer a third wire into homes, channeling high-speed data through a somewhat improbable conduit: an ordinary electrical outlet.

B.P.L. is the ultimate in plug-and-play. Users plug a small power line modem into any [redacted] and then connect the modem to a computer with a U.S.B. or Ethernet cable, or through a [redacted] connection. The appeal of B.P.L. is that most of the wiring for the network is in place. Although data must be carefully routed over the electric grid to prevent interference and signal degradation, there is no need to dig up streets or rewire homes.

Two weeks ago the Federal Communications Commission adopted rule changes to encourage the technology ~~in the hope of making broadband more~~ widely available and fostering greater competition among high-speed Internet providers.

Internet service over power lines is probably a year or more away from becoming widely available, but the F.C.C.'s ruling is expected to spur investment in B.P.L. by utilities.

"Three or four years ago, the technology was not ready for prime time, but now we know it is," said Jay Birnbaum, vice president and general counsel for Current Communications of Germantown, Md., which makes BPL equipment. "And we've gotten the cost down, so it's competitive with other broadband services."

The idea of using electric power lines to send data is not new; companies have been working on it for a decade. The major technical challenge has been how to send bursts of radio frequency energy over power lines without interfering with other radio signals, particularly ham radio and public safety frequencies.

The recent F.C.C. ruling establishes frequency bands that B.P.L. signals must avoid to protect aeronautical and Coast Guard communications, and sets up a publicly available database for resolving claims of harmful interference from private radio operators.

B.P.L. has been tested in small field trials for several years, involving about 5,000 customers in 18 states. Cinergy, a power company in the Midwest, recently began offering B.P.L. to homes in the Cincinnati area for $30 to $50 a month, depending on connection speed. The company says it hopes to have B.P.L. equipment in more than 50,000 homes by the end of the year.

Cinergy is also marketing B.P.L. to smaller municipal and cooperative power companies, particularly in rural areas.

"We felt those municipal and cooperative power companies are a terrific market because many of those areas are underserved by D.S.L. and cable," said Bill Grealis, a Cinergy executive vice president.

Adding a data channel to the power lines also has potential benefits for the utilities themselves. By reserving a sliver of the B.P.L. data channel for themselves, power companies can use the network to identify problems and accomplish troubleshooting remotely, rather than sending out a crew.

Down the road, utilities could install Internet-enabled meters and switches to [redacted]

"Our main interest in B.P.L. is using it to better manage our utility," said Bob Dobkin, a spokesman for Pepco, which is based in Washington. Pepco has a pilot B.P.L. program in about 500 homes in Potomac, Md. "It enables you to identify problems without having to send someone out."

While B.P.L. holds promise, there are unanswered questions about the technology. One F.C.C. commissioner, Michael J. Copps, dissented in part with the commission's recent action, saying the agency had failed to address issues such as whether electricity customers pay higher monthly bills to subsidize their utility's foray into broadband.

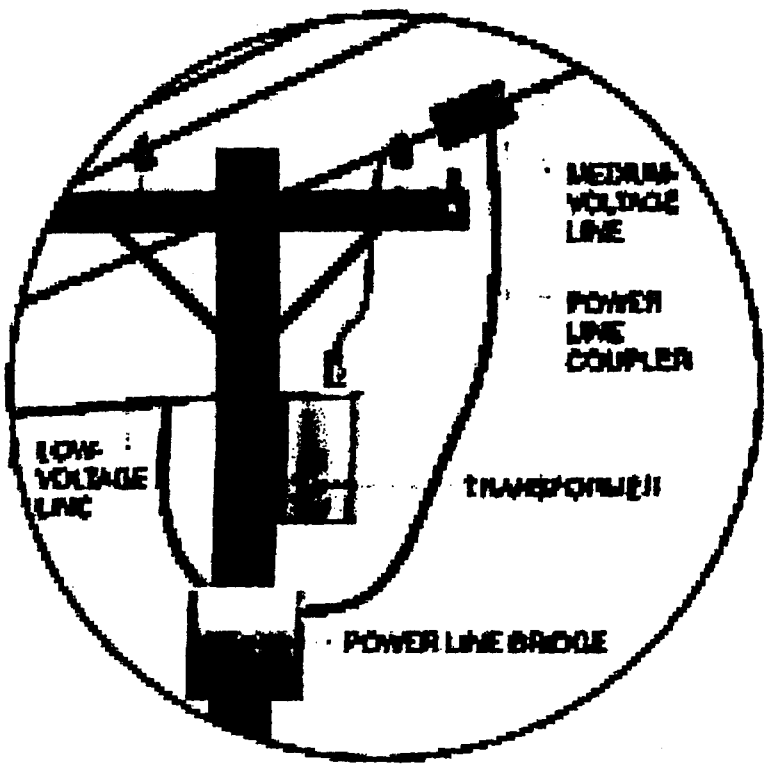
"We're great on technology, but not so good on working out the rules of the road," Mr. Copps said. "Nearly all of the industrialized nations except the U.S. have national plans for broadband. We don't have any comprehensive strategy."

Mr. Copps and others note that the United States has lately become a broadband laggard; it ranks 13th in the world in broadband penetration, behind countries such as Japan, Korea, Denmark and Iceland. Many believe one main reason is cost. While Americans typically pay $40 to $50 monthly for a D.S.L. or cable modem connection, the Japanese, for example, pay $10 to $15 a month for even faster connections.

American broadband consumers, in short, get less bit for the buck.

Will B.P.L. bring down the cost of broadband?

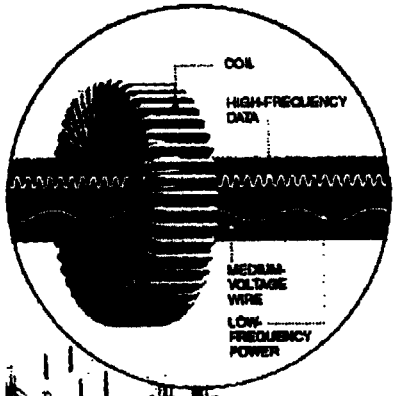
Mr. Grealis of Cinergy will say only that the cost of a B.P.L. connection will be competitive with D.S.L., cable and wireless. It remains to be seen whether the third wire into the home turns out to be a cheaper alternative or more like the third gas station on a corner, battling the competition at remarkably similar prices.



Piggybacking on Power

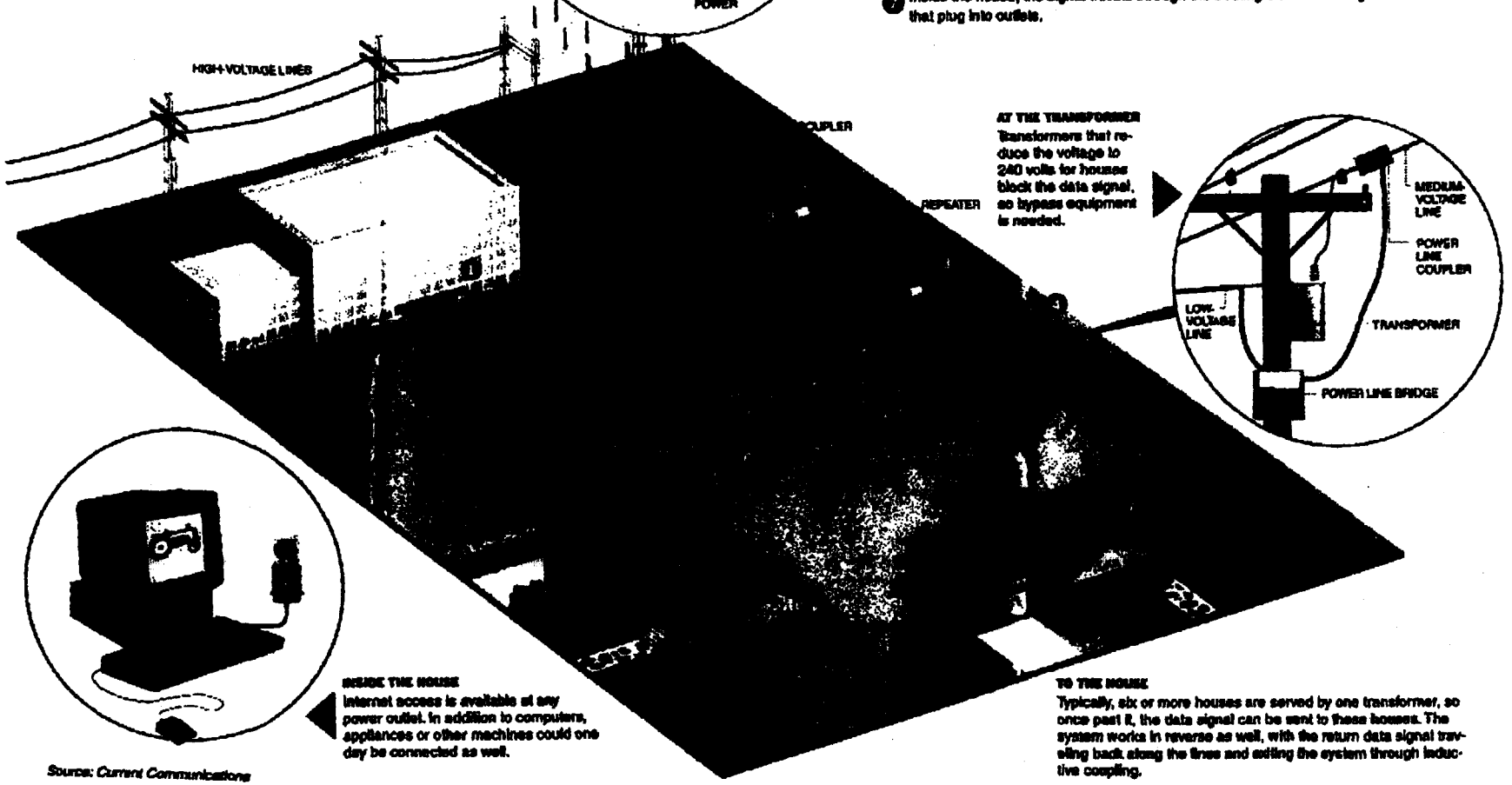
Utility companies are beginning to offer high-speed Internet access over power lines, taking advantage of the fact that nearly every house and business in the United States already has electric wires running to it. Data is sent over the medium-voltage distribution network throughout neighborhoods and then into houses over lower-voltage wires or wirelessly.

INDUCTIVE COUPLING
In magnetic induction, used to transfer the data signal to and from the electrical distribution system, a rapidly changing current through a coil generates a magnetic field that induces a current in the power line.



STEP BY STEP

1. Data from the Internet travels along high-speed cable or wires to a point outside a utility substation, where the voltage has been reduced for neighborhood transmission.
2. An inductive coupler transfers the data signal to the medium-voltage line. The coupler also works in the opposite direction.
3. In some systems, repeaters are used to boost the data signal at various points along the way.
4. Couplers and other equipment route the data around transformers, which otherwise would block the signal.
5. Once past the transformer, the data travels over the 240-volt service wires to the house.
6. Some systems use wireless modems to transfer the signal to the house.
7. Inside the house, the signal travels through the existing electrical wiring to modems that plug into outlets.



AT THE TRANSFORMER
Transformers that reduce the voltage to 240 volts for houses block the data signal, so bypass equipment is needed.

INSIDE THE HOUSE
Internet access is available at any power outlet. In addition to computers, appliances or other machines could one day be connected as well.

TO THE HOUSE
Typically, six or more houses are served by one transformer, so once past it, the data signal can be sent to these houses. The system works in reverse as well, with the return data signal traveling back along the lines and exiting the system through inductive coupling.

Source: *Current Communications*